SERVICE MANUAL
& PARTS LIST (without price)

CFX-9800G(LX-392AA)

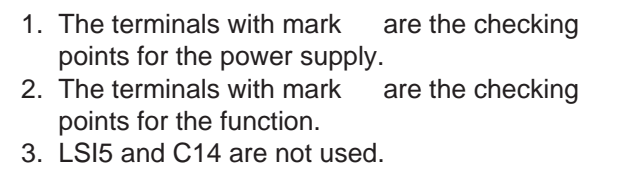## MAR. 1995
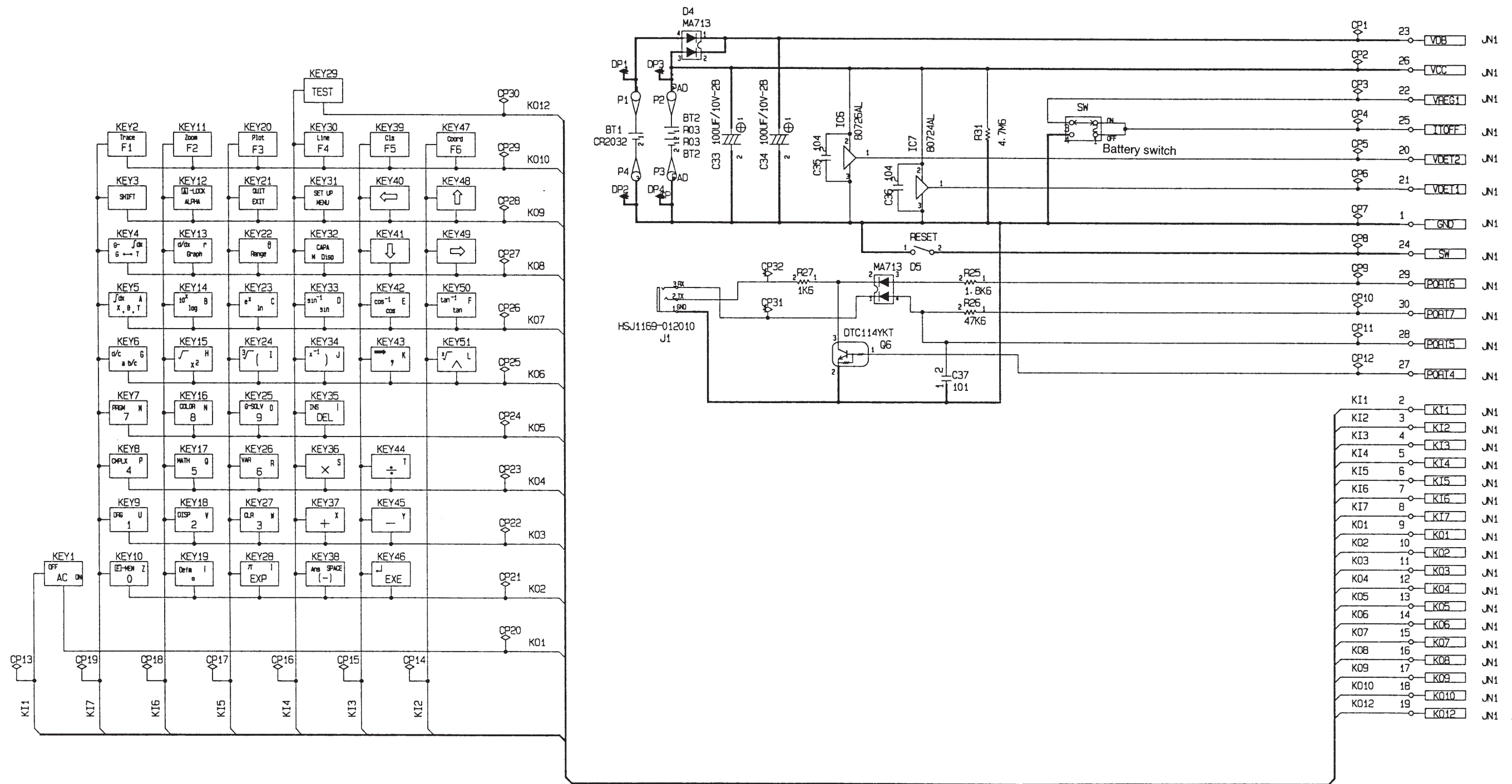
CASIO.

CONTENTS

1. SCHEMATIC DIAGRAM

1-1. Main PCB

NOTES

1. The terminals with mark ⊡ are the checking points for the power supply.
2. The terminals with mark ⊡ are the checking points for the function.
3. LSI5 and C14 are not used.

— 1 —

1-2. Power Supply and Key Block

— 2 —

2. SPECIFICATIONS

Display system:	Three colors (orange, blue, green); 16-character $\times$ 8-line liquid crystal display; 10-digit mantissa and 2-digit exponent for calculations; displays binary, octal, hexadecimal, sexagesimal values, fraction, complex number
Power supply:	Main: Two AAA-size batteries (LR03 (AM4) or R03 (UM-4)) Memory protection: One CR2032 lithium battery
Power consumption:	0.1W
Battery life*:	Main: Approximately 120 hours (continuous display of initial screen.) with battery type LR03 (AM4) Approximately 80 hours (continuous display of initial screen.) with battery type R03 (UM-4) Approximately 2 years (power switch off) with LR03 (AM4)/R03 (UM-4) Memory protection: Approximately 2 years * The batteries that have been installed in this unit when user purchased it had been used in the factory test, so it will be impossible to fully satisfy this specifications when these batteries are used.
Auto power off:	Power is automatically switched off approximately six minutes after last operation except when drawing dynamic graphs.
Ambient temperature range:	0°C ~ 40°C (32°F ~ 104°F)
Dimensions:	17.4mm H $\times$ 95.5mm W $\times$ 182.5mm D ($^5/_8$" H $\times$ 3$^3/_4$" W $\times$ 7$^1/_8$" D)
Weight:	200g (7.1 oz) including batteries
Accessories:	Hard case

Current Consumption

	TYP [μA]	MAX [μA]
ON (MENU)	4610	5530
OFF	———	15

3. GENERAL GUIDE

3-1. Modes

You can control the operations of the unit by entering the correct mode. To select the mode you need, select the appropriate icon from the Main Menu. The Main Menu appears whenever you press the MENU key.
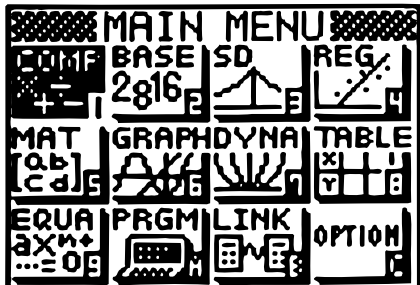
The icon that is highlighted is the one that is currently selected. Use the cursor keys to move the highlighting around the display to select the mode that you want. To enter the highlighted mode, press the EXE key.

• In addition to using the cursor keys to select a mode's icon, you can also select a mode by inputting a number or letter. Input the number or letter in the lower right corner of the icon to select the mode you want.
• Use only the procedures described above to enter a mode. If you use any other procedure, you may end up in a mode that is different than the one you thought you selected.

The following explains the meaning of each icon in the Main Menu.

COMP Mode
Use this mode for arithmetic calculations and function calculations, for drawing graphs and for executing programs.

BASE Mode
Use this mode for binary, octal, decimal, and hexadecimal calculations and conversions. This mode is also used for logical operations.

SD Mode
Use this mode for single-variable statistical calculations (standard deviation), and for drawing normal distribution and single-variable statistical graphs.

REG Mode
Use this mode for paired-variable statistical calculations (regression), and for drawing paired-variable statistical graphs.

MAT Mode
Use this mode for matrix calculations.

GRAPH Mode
Use this mode to input functions and draw their graphs.

DYNA Mode
Use this mode to store graph functions and to draw graphs by changing the values for variables in the functions.

TABLE Mode
Use this mode to store a function or recursion formula, to generate a solution table of values produced when the values of variables in a function or recursion formula change, and to draw graphs.

EQUA Mode
Use this mode to solve linear equations with two through six unknowns, quadratic equations, and cubic equations.

PRGM Mode
Use this mode to store programs in the program area, to execute programs, and to store and execute programs as file data.

LINK Mode
Use this mode to transfer program, function, matrix, and other memory data to another unit.

OPTION Mode
Use this mode to adjust the color contrast of the display and to reset the calculator to its initial settings.

3-2. About Display Colors

The calculator can display data in three colors: orange, blue, and green. The default color for graph drawing and comment text accompanying a graph or program execution operation is blue, but you can use the following procedure to change the color to orange or green if you want.

1. Display the Graph Color Menu.

   [SHIFT] [COLOR]

   [F1] (Orn) .. Orange graph and comment text
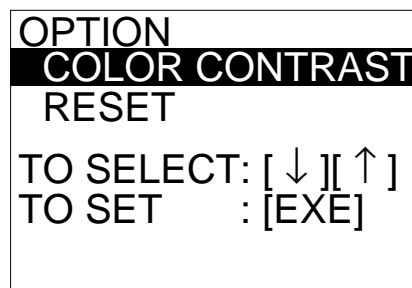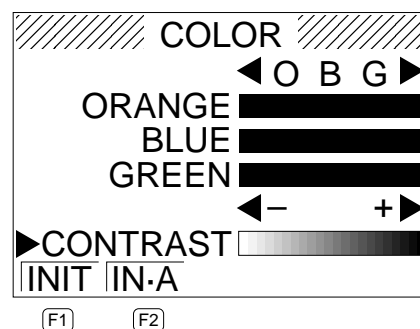   [F2] (Grn) .. Green graph and comment text

2. Press the function key that correspond to the color you want to specify for graph drawing and comment text, and then input the text.

3. Execute the function or run the program to display the graph and comment text in the color you specify.

3-3. Color Contrast Adjustment

Highlight the OPTION icon on the Main menu and then press [EXE].

EXE

F1 (INIT) . Returns tint to default setting.
F2 (IN·A) . Returns tint and contrast to default setting.

• **To adjust the contrast**

1. Use ▼ and ▲ to move the pointer to CONTRAST.

2. Use ▶ to make the figures on the display darker or ◀ to make them lighter.

3. Press MENU to return to the Main Menu.

• **To adjust the tint**

1. Use ▼ and ▲ to move the pointer to the color you want to adjust (ORANGE, BLUE, GREEN).

2. Use ▶ to move the setting toward the G (green) side or ◀ to move it to the O (orange) side.

3. Press MENU to return to the Main Menu.

• When adjusting the color contrast, first adjust overall display contrast, and then adjust the tint of each individual color.

• You can also adjust the overall contrast whenever any other screen is shown on the display by pressing SHIFT and then ◀ or ▶ . Press SHIFT again to exit the contrast adjustment procedure.

3-4.   About Low Battery Warning

If the following message appears on the display, immediately stop using the calculator and replace batteries.

✳✳ Low battery! ✳✳

If you try to continue using the calculator, it will automatically switch power off, in order to protect memory contents. You will not be able to switch power back on until you replace batteries.

Be sure to replace batteries at least once every two years, no matter how much you use the calculator during that time.

4.REPLACING BATTERIES

Warning!
If you remove both the main power supply and the memory back up batteries at the same time, all memory contents will be erased.

Precautions:

Incorrectly using batteries can cause them to burst or leak, possibly damaging the interior of the unit. Note the following precautions:

• Be sure that the positive ⊕ and negative ⊖ poles of each battery are facing in the proper directions.
• Never mix batteries of different types.
• Never mix old batteries and new ones.
• Never leave dead batteries in the battery compartment.
• Remove the batteries if you do not plan to use the unit for long periods.
• Never try to recharge the batteries supplied with the unit.
• Do not expose batteries to direct heat, let them become shorted, or try to take them apart.

4-1. To Replace the Main Power Supply Batteries

* Never remove the main power supply and the memory back up batteries from the unit at the same time.
* Be sure to switch the unit off before replacing batteries. Replacing batteries with power on will cause data in memory to be deleted.
* Never replace the main power supply battery compartment cover or switch the calculator on while the main power supply batteries are removed from the calculator or not loaded correctly. Doing so can cause memory data to be deleted and malfunction of the calculator. If mishandling of batteries causes such problems, correctly load batteries and then perform the RESET operation to resume normal operation.
* Be sure to replace all two batteries with new ones.

① Switch the power of the calculator off, and slide the calculator into its hard case.

② Remove screw Ⓐ on the back of the calculator, and remove the main battery compartment cover.

③ Remove the two old batteries.

④ Load a new set of two batteries, making sure that their positive ⊕ and negative ⊖ ends are facing in the proper directions.

⑤ Insert the tabs of the main battery compartment cover into the slots in the back of the calculator and replace the cover. Secure it in place with the screw.

• Power will not switch on if you press **AC/ON** while the main power supply battery compartment cover is open.

⑥ Remove the calculator from its hard case and press **AC/ON** to switch power on.

• Power supplied by memory back-up batteries while the main power supply batteries are removed retains memory contents.

• Do not leave the unit without main power supply batteries loaded for long periods. Doing so can cause deletion of data stored in memory.

Screw Ⓐ
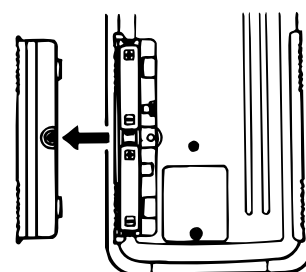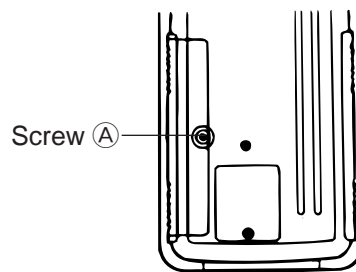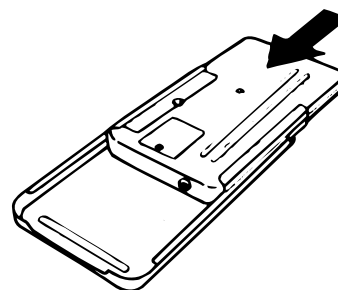
4-2. To Replace the Memory Back Up Battery

* Before replacing the memory backup battery, switch on the unit and check to see if the "Low battery!" message appears on the display. If it does, replace the main power supply batteries before replacing the back up power supply battery.
* Never remove the main power supply and the memory back up batteries from the unit at the same time.
* Be sure to switch the unit off before replacing batteries. Replacing batteries with power on will cause data in memory to be deleted.
* Be sure to replace the back up power supply battery at least once 2 years, regardless of how much you use the unit during that time. Failure to do so can cause data in memory to be deleted.

① Switch the power of the calculator off.

② Remove screw Ⓑ on the back of the calculator, and remove the back-up battery compartment cover.

③ Remove the old battery.

④ Wipe off the surfaces of a new battery with a soft, dry cloth. Load it into the calculator so that its positive ⊕ side is facing up.

⑤ Insert the tabs of the back-up battery compartment cover into the slots in the back of the calculator and replace the cover. Secure it in place with the screw.

⑥ Switch the power of the calculator on and check for proper operation.

Screw Ⓑ
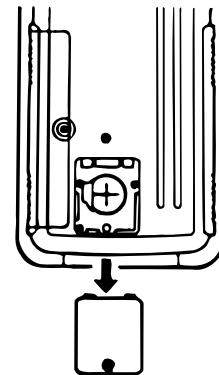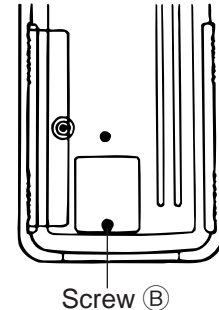
5. RESET OPERATION

Warning!
The procedure described here clears all memory contents. Never perform this operation unless you want to totally clear the memory of the calculator.

You should perform the RESET operation whenever you want to initialize the calculator. If you need the data currently stored in memory, be sure to write it down somewhere before performing the RESET operation.

• **To reset the calculator**

① Switch the power of the calculator on.

② Press MENU to display the Main Menu.

③ Use the cursor keys to select the OPTION icon and then press EXE. Or you can simply press ᴵⁿ while the Main Menu is displayed.

```
OPTION
 COLOR CONTRAST
 RESET

TO SELECT: [ ↓ ][ ↑ ]
TO SET    : [EXE]
```
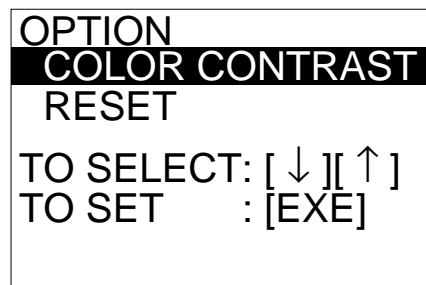
④ Use ▼ to select RESET and then press EXE.

```
*****************
*     RESET     *
*****************
     RESET
  ALL MEMORIES?

YES RESET ALL N O
```
F1

⑤ Press F1 (YES) to reset the calculator, or F6 (NO) to abort the reset operation.

F1 (YES)

```
*****************
*               *
*     RESET     *
*               *
*  ALL MEMORIES! *
*               *
*               *
*****************
```

⑥ After you finish the RESET operation, adjust the color contrast.

Resetting the calculator initializes the unit to the following settings.

Item	Initial Setting
Mode	COMP
Unit of Angular Measurement	Deg
Norm	Norm 1
BASE-N	Dec
Value Memories	Clear
Expanded Memory	Clear
Function Memory	Clear
Ans Memory	Clear
Graphic Display	Clear
Text Display	Clear
Equation Memory	Clear
Statistical Data Memory	Clear
Matrix Memory	Clear
Graphic Function Memory	Clear
Dynamic Graph Functions	Clear
Table & Graph Data	Clear
Input Buffer	Clear
Program/File Memory	Clear

- Be sure to always keep written copies of all important data in case you accidently delete it using the RESET operation.

- If the calculator stops operating correctly for some reason, use a thin, pointed object to press the RESET button on the back of the calculator. This should make the RESET confirmation screen appear on the display. Perform the procedure described above to complete the RESET operation.

- If the RESET confirmation screen does not appear when you press the RESET button, keep pressing the button until it does.

RESET button
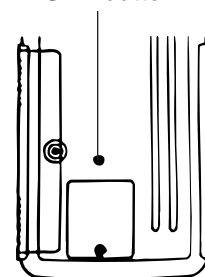
6. WELDING CONDITION FOR THE CERAMIC OSCILLATOR (CSTC4.30MG-TC)

Because the heat-resisting test for welding the ceramic oscillator (CSTC4.30MG-TC) was administered by factory under the condition that weld temperature was 240 ± 5 °C and welding time was 3 ± 1 seconds after the preheating of 150 ± 30 °C temperature and 60 seconds time, it is recommended that you should give first priority to take the welding condition, 150 ± 30 °C and 60 seconds for preheating, and 230 ± 5 °C and less 20 seconds for welding, if you have to weld the ceramic oscillator (CSTC4.30MG-TC).

7. ERROR MESSAGE

Message	Meaning	Countermeasure
Syn ERROR	① Calculation formula contains an error. ② Formula in a program contains an error.	① Use ◀ or ▶ to display the point where the error was generated and correct it. ② Use ◀ or ▶ to display the point where the error was generated and then correct the program.
Ma ERROR	① Calculation result exceeds calculation range. ② Calculation is performed outside the input range of a function. ③ Illogical operation (division by zero, etc.) ④ Poor precision in Σ calculation results. ⑤ Poor precision in differential calculation results. ⑥ Poor precision in integration calculation results. ⑦ Cannot find results of equation calculations.	①②③④ Check the input numeric value and correct it. When using memories, check that the numeric values stored in memories are correct. ⑤ Try using a smaller value for Δx (x increment/decrement). ⑥ Try using a larger value for n (number of partitions). ⑦ Check the coefficients of the equation.
Go ERROR	① No corresponding Lbl n for Goto n. ② No program stored in program area Prog n.	① Correctly input a Lbl n to correspond to the Goto n, or delete the Goto n if not required. ② Store a program in program area Prog n, or delete the Prog n if not required.

Message	Meaning	Countermeasure
Ne ERROR	• Nesting of subroutines by Prog *n* exceeds 10 levels.	• Ensure that Prog *n* is not used to return from subroutines to main routine. If used, delete any unnecessary Prog *n*. • Trace the subroutine jump destinations and ensure that no jumps are made back to the original program area. Ensure that returns are made correctly.
Stk ERROR	• Execution of calculations that exceed the capacity of the stack for numeric values or stack for calculations.	• Simplify the formulas to keep stacks within 10 levels for the numeric values and 26 levels for the calculations. • Divide the formula into two or more parts.
Mem ERROR	① Specified expanded value memory does not exist. ② Not enough memory to expand value memories specified number. ③ Not enough memory to input a function into function memory. ④ Not enough memory to create a matrix using the specified dimension. ⑤ Not enough memory to hold matrix calculation result. ⑥ Not enough memory to store statistical data. ⑦ Not enough memory to input coefficient for equation. ⑧ Not enough memory to hold equation calculation result. ⑨ Not enough memory to hold function input in the Graph Mode for graph drawing. ⑩ Not enough memory to hold function input in the DYNA Mode for graph drawing. ⑪ Not enough memory to hold function or recursion input in the TABLE Mode.	① Use [SHIFT] [Defm] to correctly expand the number of value memories. ②③④⑤⑥⑦⑧⑨⑩⑪ • Keep the number of value memories you use for the operation within the number of value memories currently available. • Simplify the data you are trying to store to keep it within the available memory capacity. • Delete no longer needed data to make room for the new data.
Arg ERROR	Incorrect argument specification for a command that requires an argument.	Correct the argument. • Sci *n*, Fix *n*: *n* = integer from 0 through 9. • Lbl *n*, Goto *n*: *n* = integer from 0 through 9. • Prog n: n = 0 through 9, A through Z, r, θ. • Defm *n*: *n* = integer from 0 up to the number of remaining bytes.
Dim ERROR	• Illegal dimension used during matrix calculations.	• Check matrix dimension.

Message	Meaning	Countermeasure
TRANSMIT ERROR!	Problem with cable connection or parameter setting during data communications.	• Check cable connection. • Check to see that the parameters of the sending unit and receiving unit are identical.
RECEIVE ERROR!	Problem with cable connection or parameter setting during data communications.	• Check cable connection. • Check to see that the parameters of the sending unit and receiving unit are identical.
MEMORY FULL!	Memory of receiving unit became full during program data communications.	• Delete some data stored in the receiving unit and try again.

8. OPERATION CHECK
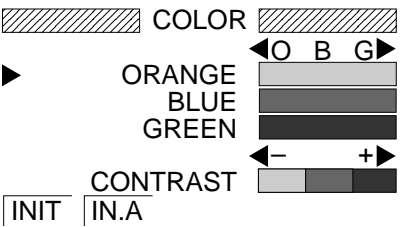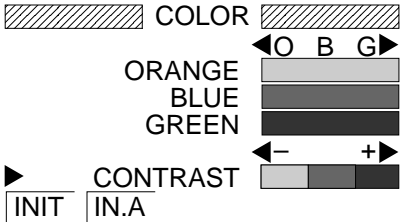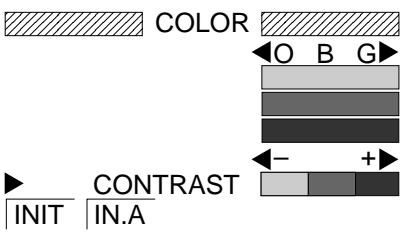
STEP	OPERATION	DISPLAY	NOTE
1	Use a thin and pointed object to press the RESET button on the back of the unit.	******************** * RESET * ******************** RESET ALL MEMORIES? YES RESET ALL NO	Reset
2	F1	******************** * RESET * * ALL MEMORIES ! * ********************	
3	SHIFT	RUN / COMP G-type : REC/CON Angle : Deg Display : Nrm1 M-D/Cpy : M-Disp ZM PLT LIN CLS	
4	AC/ON	(OFF)	
5	Press F6 ab/c AC/ON keys at same time.	LX392 TEST MODE 1. LCD 5. DET 2. KEY 6. TRS 3. RAM 7. Cnt 4. ROM 0. Rst	TEST mode menu
6	1	Frame is displayed	Check for display
7	EXE	No color, no display	Check for display
8	EXE	Red dots are displayed	Check for display
9	EXE	Green dots are displayed	Check for display

STEP	OPERATION	DISPLAY	NOTE
10	[EXE]	Blue dots are displayed	Check for display
11	[EXE]	Checkers are displayed	Check for display
12	[EXE]	Reverse checkers are displayed	Check for display
13	[EXE]	Four colors are displayed Blue / No color / Orange / Green	Color check. If the colors do not appear accurately, please take the adjustment mentioned in the section 9.
14	[EXE]	Four colors are displayed Blue No color Orange Green	Color check
15	[EXE]	LX392 TEST MODE 1. LCD 5. DET 2. KEY 6. TRS 3. RAM 7. Cnt 4. ROM 0. Rst	TEST mode menu
16	[2]	Trace	Check for keys
17	[F1] [F2] [F3]	Zoom, Plot, Line, ...	Check for keys. To push the key sequentially that is being appeared in the display.
18	...... [EXE]	LX392 TEST MODE 1. LCD 5. DET 2. KEY 6. TRS 3. RAM 7. Cnt 4. ROM 0. Rst	TEST mode menu
19	[4]	ROMSIZE 4M byte ROM OK	ROM check
20	[EXE]	LX392 TEST MODE 1. LCD 5. DET 2. KEY 6. TRS 3. RAM 7. Cnt 4. ROM 0. Rst	TEST mode menu
21	[3]	RAMSIZE 64K byte RAM OK RAM2 OK	RAM check

STEP	OPERATION	DISPLAY	NOTE
22	[EXE]	LX392 TEST MODE 1. LCD 5. DET 2. KEY 6. TRS 3. RAM 7. Cnt 4. ROM 0. Rst	TEST mode menu
23	[0]	******************** * RESET * ******************** RESET ALL MEMORIES? ‾YES‾ RESET ALL ‾NO‾	Reset
24	[F1]	******************** * RESET * * ALL MEMORIES ! * ********************	
25	[SHIFT] [AC/ON]	(OFF)	End

9. COLOR ADJUSTMENT ON OPERATION CHECK

STEP	OPERATION	DISPLAY	NOTE
1	Use thin and pointed object to press the RESET button on the back of the unit.	******************** * RESET * ******************** RESET ALL MEMORIES? ‾YES‾ RESET ALL ‾NO‾	Reset
2	[F1]	******************** * RESET * * ALL MEMORIES ! * ********************	
3	[SHIFT]	RUN / COMP G-type : REC/CON Angle : Deg Display : Nrm1 M-D/Cpy : M-Disp ‾ZM‾|‾PLT‾|‾LIN‾|‾CLS‾	
4	[AC/ON]	(OFF)	
5	Press [F6] [ab/c] [AC/ON] keys at same time.	LX392 TEST MODE 1. LCD 5. DET 2. KEY 6. TRS 3. RAM 7. Cnt 4. ROM 0. Rst	TEST mode menu

STEP	OPERATION	DISPLAY	NOTE
6	7	▨▨▨ COLOR ▨▨▨ ◀O B G▶ ▶ ORANGE BLUE GREEN ◀− +▶ CONTRAST |INIT |IN.A	Color adjustment mode
7	▼ ▼ ▼	▨▨▨ COLOR ▨▨▨ ◀O B G▶ ORANGE BLUE GREEN ◀− +▶ ▶ CONTRAST |INIT |IN.A	Aim ▶ at the CONTRAST
8	◀ or ▶	▨▨▨ COLOR ▨▨▨ ◀O B G▶ ◀− +▶ ▶ CONTRAST |INIT |IN.A	Adjust the color until the primary colors appear accurately.
9	EXIT	LX392 TEST MODE 1. LCD 5. DET 2. KEY 6. TRS 3. RAM 7. Cnt 4. ROM 0. Rst	TEST mode menu
10	Take the steps as same as the end of OPERATION CHECK to end this adjustment.		End

10. DATA TRANSFER CHECK

Turn off both units and connect them by using the cable SB-60.

STEP	MASTER OPERATION	MASTER DISPLAY	SLAVE OPERATION	SLAVE DISPLAY	NOTE
1	Press ⌑F6⌑ ⌑ab/c⌑ ⌑AC/ON⌑ keys at same time.	LX392 TEST MODE 1. LCD 5. DET 2. KEY 6. TRS 3. RAM 7. Cnt 4. ROM 0. Rst	Press ⌑F6⌑ ⌑ab/c⌑ ⌑AC/ON⌑ keys at same time.	LX392 TEST MODE 1. LCD 5. DET 2. KEY 6. TRS 3. RAM 7. Cnt 4. ROM 0. Rst	TEST mode menu
2	⌑6⌑	TRANSMIT Check 1. COM Check 2. Random Data Out	⌑6⌑	TRANSMIT Check 1. COM Check 2. Random Data Out	
3	⌑1⌑	0. Self 1. Send 2. Receive	⌑1⌑	0. Self 1. Send 2. Receive	
4			⌑2⌑	WAITING	
5	⌑1⌑	SENDING ▼ COM END		WAITING ▼ COM OK	Check for sending
6	⌑EXE⌑	0. Self 1. Send 2. Receive	⌑EXE⌑	0. Self 1. Send 2. Receive	
7	⌑2⌑	WAITING			
8		WAITING ▼ COM OK	⌑1⌑	SENDING ▼ COM END	Check for receptivity
9	⌑EXE⌑	0. Self 1. Send 2. Receive	⌑EXE⌑	0. Self 1. Send 2. Receive	
10	⌑AC/ON⌑	LX392 TEST MODE 1. LCD 5. DET 2. KEY 6. TRS 3. RAM 7. Cnt 4. ROM 0. Rst		LX392 TEST MODE 1. LCD 5. DET 2. KEY 6. TRS 3. RAM 7. Cnt 4. ROM 0. Rst	TEST mode menu
11	Take the steps as same as the end of OPERATION CHECK to end this check.		Take the steps as same as the end of OPERATION CHECK to end this check.		End

11. DATA COMMUNICATIONS

• Though you can transfer programs between the CFX-9800G and another CFX-9800G, an fx-7700GB, an fx-7700GE an fx-7700GH, an fx-9700GE, an fx-9700GH, an OH-7700GE, an OH-9700GE or an fx-8700GB, all of the examples in this manual cover data transfer with another CFX-9800G only.

11-1. Connecting Two CFX-9800G Units

The following procedure describes how to connect two Power Graphic units with an optional SB-62 connecting cable for transfer of programs between them.

To Connect Two CFX-9800G Units
1. Check to make sure that the power of both CFX-9800G units is off.
2. Remove the covers from the connectors of the two Power Graphic units.
   • Be sure you keep the connector covers in a safe place so you can replace them after you finish your program communications.
3. Connect the two units using the SB-62 cable.

SB-62 cable
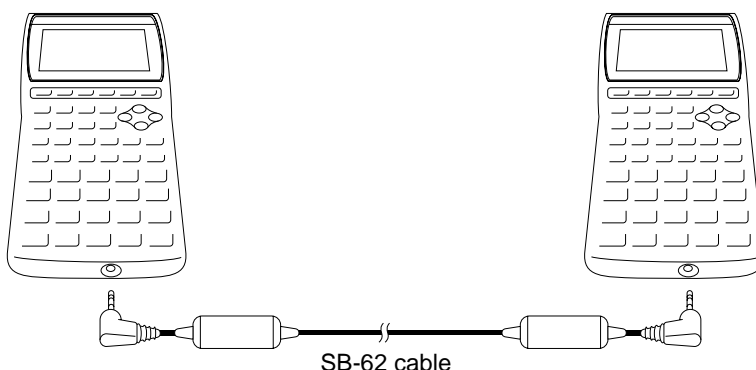
Important
• Keep the connectors of the CFX-9800G covered when you are not using them.

11-2. Before Starting Data Communications

Before actually starting data communications, you should first enter the LINK Mode from the Main Menu.

To Enter the LINK Mode
Highlight the **LINK** icon on the Main Menu.

Press [EXE] to display the LINK Mode.

[EXE]

```
COMMUNICATION
PARITY   : EVEN
BPS      : 96ØØ
M–D/Cpy : M–Disp


TRN  RCV                SET
```
F1   F2   F6
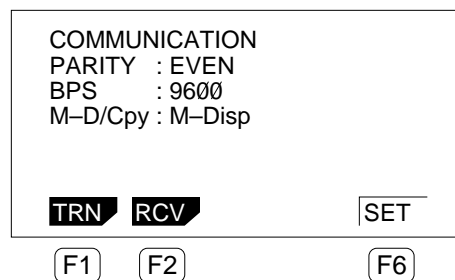
The following are the operations that can be selected from the function menu at the bottom of the display. Press the function key below the operation you want to perform.

[F1] (TRN) .... Transmit

[F2] (RCV) .... Receive

[F6] (SET) .... Set up display

About the Data Type Selection Screen

Whenever you press [F1] (TRN) to send data or [F2] (RCV) to receive data, a data type selection screen appears on the display.

```
————————————— Send Unit —————————————    ————————————— Receive Unit —————————————
[F1] (TRN)                                 [F2] (RCV)

  ┌─────────────────────────────────┐       ┌─────────────────────────────────┐
  │  TRANSMIT DATA                  │       │  RECEIVE DATA                   │
  │ ►ALL                            │       │ ►ALL                            │
  │  Program                        │       │  Program                        │
  │  Editor                         │       │  Editor                         │
  │  Function Memory                │       │  Function Memory                │
  │  Matrix                         │       │  Matrix                         │
  │  Statistics                     │       │  Statistics                     │
  │  Variable Memory         ↓      │       │  Variable Memory         ↓      │
  └─────────────────────────────────┘       └─────────────────────────────────┘
    └─Pointer   Indicates more below─┘
```
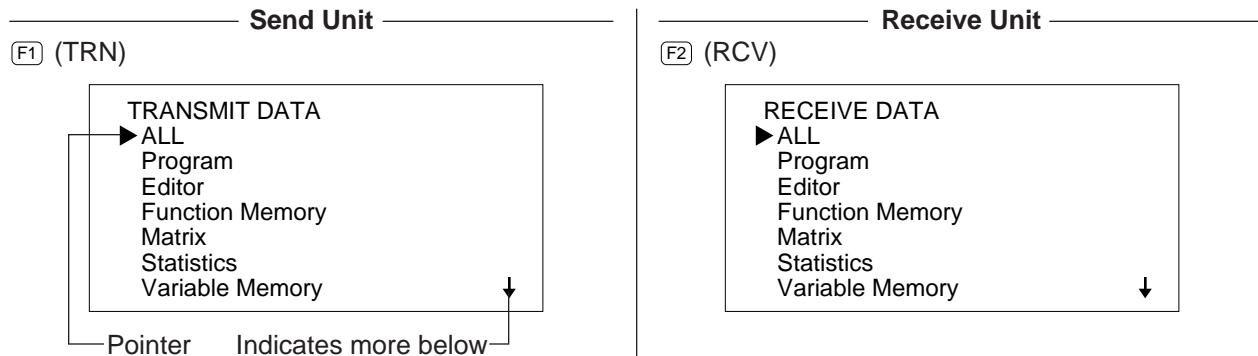
The following table describes what each of these items means. You will learn later how to make a selection using these screens.

Selection	Meaning
ALL	All data from Program to Equation
Program	Program data
Editor	File names and file data
Function Memory	Function memory contents
Matrix	Matrix memory contents
Statistics	Single-variable and paired-variable statistical data
Variable Memory	Value memory and extended memory contents
Range	Graph range parameters
Factor	Factor function zoom ratios
Table	Table & Graph function data
Graph Function	Graph functions, graph draw/non-draw specification, graph color specification.
Dynamic Graph	Dynamic Graph function data
Equation	Equation coefficients
Back Up	All memory contents, including mode settings

Note
• If the selections you make on the send unit and receive unit do not match, a TRANSMIT ERROR will be generated on the sender and a RECEIVE ERROR will be generated on the receiver.

11-3. Setting Communications Parameters

Before you can perform data communications, you must first set up certain hardware parameters to make sure that the two units are able to understand each other. The parameters of the sender and the receiver must be identical for them to be able to communicate correctly. There are two hardware parameters that you can set.

Parameter	Settings
PARITY	EVEN ODD NONE
Speed (BPS)	1200 2400 4800 9600

— 18 —

To Set CFX-9800G Parameters
Starting from the LINK Mode:

F6 (SET) (or [SHIFT] [SET UP])

```
PARITY  : EVEN
 BPS        : 9600
 M–D/Cpy : M–Disp




 EVN ODD NON
```
    F1   F2   F3

• This display shows the currently set parameters.

Press the function key that corresponds to the parity you want to set.
Press ▼ to select BPS.

▼

```
 BPS         : 9600


 12   24   48   96      <×100>
```
  F1   F2   F3   F4

Press the function key that corresponds to the communication speed you want to set.
Press [EXIT] to complete the procedure and return to the previous function menu.

11-4. Using ALL, Range, and Factor

The following procedures show how to send data using ALL, Range, and Factor from one CFX-9800G unit to another. The example procedure shows an operation using ALL only, but the procedures for Range and Factor are identical.

• To send data using ALL

———————— **Send Unit** ————————

Starting from the LINK Mode, press the function key to enter the send mode.

F1 (TRN)
```
TRANSMIT DATA
▶ALL
  Program
  Editor
  Function Memory
  Matrix
  Statistics
  Variable Memory          ↓
```

Make sure that the pointer is located at ALL, and press [EXE] to specify it as the data type.

[EXE]
```
= = TRANSMIT = =
ALL  DATA



YES                    NO
```
  F1   F6

Press F1 (YES) to start the send operation, or F6 (NO) to abort without sending anything.

———————— **Receive Unit** ————————

Starting from the LINK Mode, press the function key to enter the receive mode.

F2 (RCV)
```
RECEIVE DATA
▶ALL
  Program
  Editor
  Function Memory
  Matrix
  Statistics
  Variable Memory          ↓
```

Make sure that the pointer is located at ALL, and press [EXE] to specify it as the data type.

[EXE]
```
= = RECEIVE = =
ALL  DATA



YES                    NO
```
  F1   F6

Press F1 (YES) to start the receive operation, or F6 (NO) to abort without receiving anything.

F1 (YES)

```
= =  TRANSMITTING = =


ALL DATA



TO STOP    : [ AC ]
```

F1 (YES)

```
= =  RECEIVING = =


ALL DATA



TO STOP    : [ AC ]
```

* Pressing **AC** interrupts the send operation and returns to the LINK Mode.

* Pressing **AC** interrupts the receive operation and returns to the LINK Mode.

The following appears after the send operation is complete.

The following appears after the receive operation is complete.

```
COMMUNICATION
COMPLETE
ALL DATA


      PRESS  [ AC ]

```

```
COMMUNICATION
COMPLETE
ALL DATA


      PRESS  [ AC ]

```

* Press **AC** to return to the LINK Mode.

Warning!
Transferring data using ALL causes data in the applicable memory areas of the receiving unit to be replaced by the received data. Make sure that you do not need the data stored in the receiving unit before you start an operation using ALL.

11-5. Data Communications Precautions

Note the following precautions whenever you perform data communications.

• A TRANSMIT ERROR occurs whenever you try to send data to a receiving unit that is not yet standing by to receive data. When this happens, press **AC** to clear the error and try again, after setting up the receiving unit to receive data.
• A RECEIVING ERROR occurs whenever the receiving unit does not receive any data approximately six minutes after it is set up to receive data. When this happens, press **AC** to clear the error.
• A TRANSMIT ERROR or RECEIVE ERROR occurs during data communications if the cable becomes disconnected, if the parameters of the two units do not match, or if any other communications problem occurs. When this happens, press **AC** to clear the error and correct the problem before trying data communications again. In this case, any data received before the problem occurred is cleared from the receiving unit's memory.
• A MEMORY FULL operation occurs if the receiving unit memory becomes full during data communications. When this happens, press **AC** to clear the error and delete unneeded data from the receiving unit to make room for the new data, and then try again.

12. PIN FUNCTION

12-1. CPU (HD62119A02)

Pin No.	Pin Name	Input / Output	Function
1,3~12	KO1~KO10,KO12	O	Key common signal
14~20	KI1~KI7	I	Key input signal
22	IT2	I	Interrupt input
23	IT0		GND
24~42	AO0~AO18	O	Address bus
43	OEBO	O	Enable signal
44	WEBO	O	Enable signal to write
48~51	CS4BO~CS7BO	O	Chip selecting signal
52~59	IO0~IO7	I	Data bus
62,63	OPT0,OPT1	O	Output point for check
64~71	PORT0~PORT7	I/O	Input/output point
72	VSS		GND
73,74	PI,PO		Power for ceramic oscillator
75	VLC		Power
76,77	XO,XI		Power
78	VCC		Power for LSI
79	VREG2		Power
80,81	TS1,TS2	I	Terminal for test
82	VSSR		GND
85	VSS		GND
86	OCLK	O	Clock
87	ITOFF	I/O	Terminal for power switch
89	SW	I	Reset switch
90	VDB		Power
91~94	VD1~VD4		Power for doubler
95	VREG1		Regulator power for LSI
96	VREG4		Regulator power for ROM
97	VREG5		Regulator power
98,99	VDT1I,VDT2I	I	Terminal for detector
100	VREG3		Regulator power for RAM

12-2. ROM (MB834000CPF-G-4EP)

Pin No.	Pin Name	Input / Output	Function
1	NC	I	Power supply
2~12,23,25~31,	A0~A18	I	Address input
13~15,17~21	D0~D7	O	Data output
16	VSS	I	Ground
22	CE	I	Chip enable input from CPU
24	OE	I	Output enable input from CPU
32	VCC	I	Power supply

12-3. RAM (256SRAM/3V)

Pin No.	Pin Name	Input / Output	Function
1~10,21,23~26,	A0~A14	I	Address input
11~13,15~19	IO1~IO8	I/O	Data input/output
14	GND	I	Ground
20	CS	I	Chip select signal
22	OE	I	Output enable input from CPU
27	WE	I	Write enable input
28	VCC	I	Power supply

13. TROUBLESHOOTING

SYMPTOM	CAUSE	SOLUTION
Intermittent display	Dirt or poor contact on battery	Clean or adjust pressure of contact
	Poor contact on power switch	Clean or replace power switch
	Poor connection on PC joiner	Resolder or replace
	Poor soldering on LSI, capacitor, or resistor	Resolder
No display at all	Weak battery	Replace battery
	Dirt or poor contact on battery	Clean or adjust pressure of contact
	Poor contact on power switch	Clean or replace power switch
	Poor connection on PC joiner	Resolder or replace
	Defective LSI, capacitor, or resistor	Replace
Erratic display	Poor contact between LCD and PCB	Replace the heat seal
	Poor soldering on LSI	Resolder or replace display PCB ass'y
Certain key does not function	Dirt on key contact	Clean or replace contact
	Heavy key motion	Clean or replace the key
	Poor soldering on LSI	Resolder
	Defective LSI, capacitor, or resistor	Replace
All keys do not function	Constant contact is made on a certain key	Separate the contact
	Defective LSI, capacitor, or resistor	Replace
Heavy key motion	Dirt or scratch on the key	Clean or replace the key

14. DISASSEMBLY AND EXPLODED VIEW

1. Loosen both ⑳ and ㉓ screws on the battery covers ㉑ and ㉒ after removing the hard case �52 from the body, and remove the battery covers and batteries.
2. Loosen the four screws ㉔ on the lower case ⑮, and remove this lower case from the body.
3. Remove one end of the PC joiner ⑭ from the L392-1 assembly ① with the help of fusing its weld.
4. Loosen the two screws ㊿ on the L392-1 assembly ① and the four screws ㊿ on the LCD holder ③, then remove the L392-1 assembly ① from the upper case ㉛.
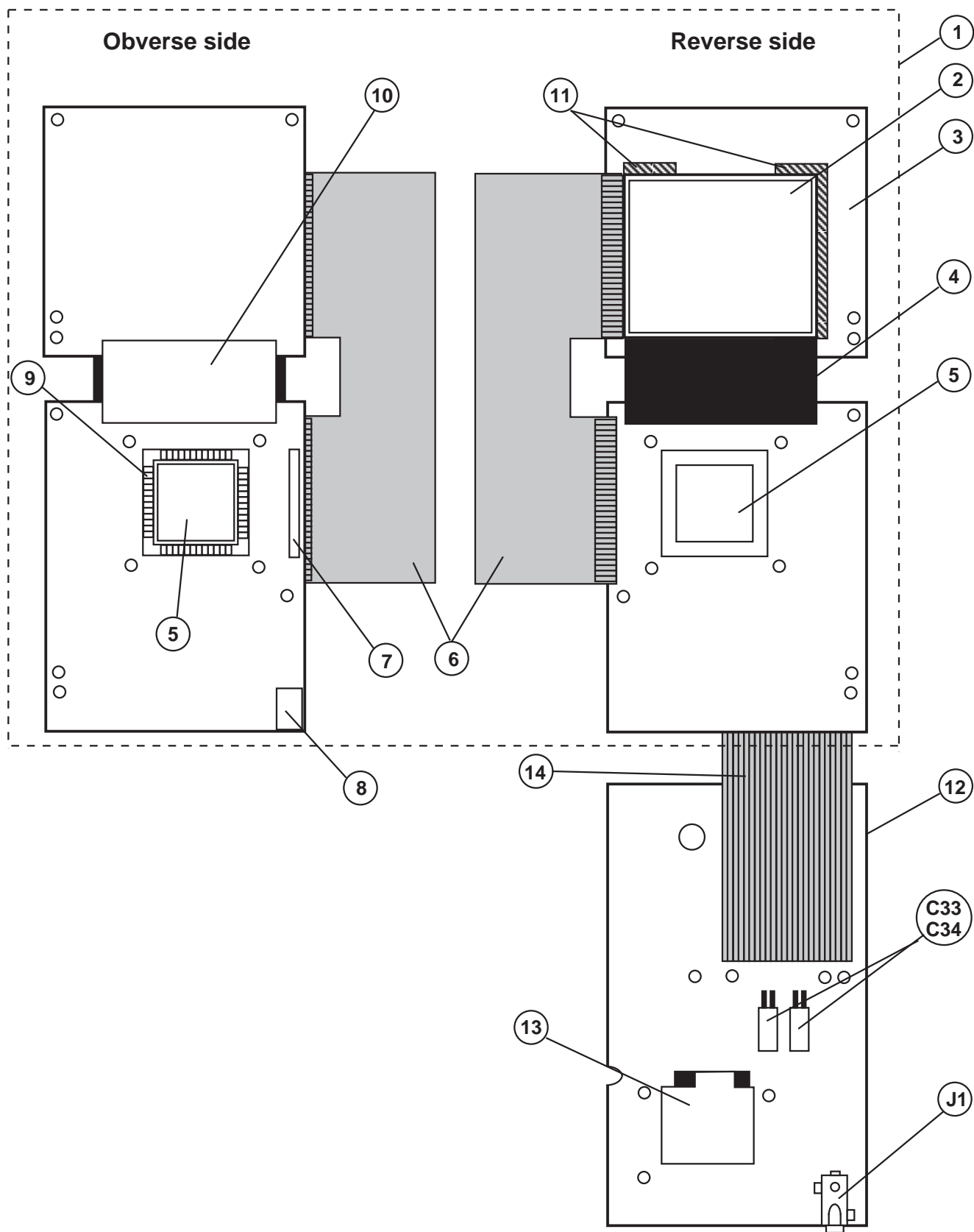5. Loosen the six screws ㊿ on the L392-2 assembly, and remove the L392-2 assembly from the upper case ㉛.

Obverse side

Reverse side
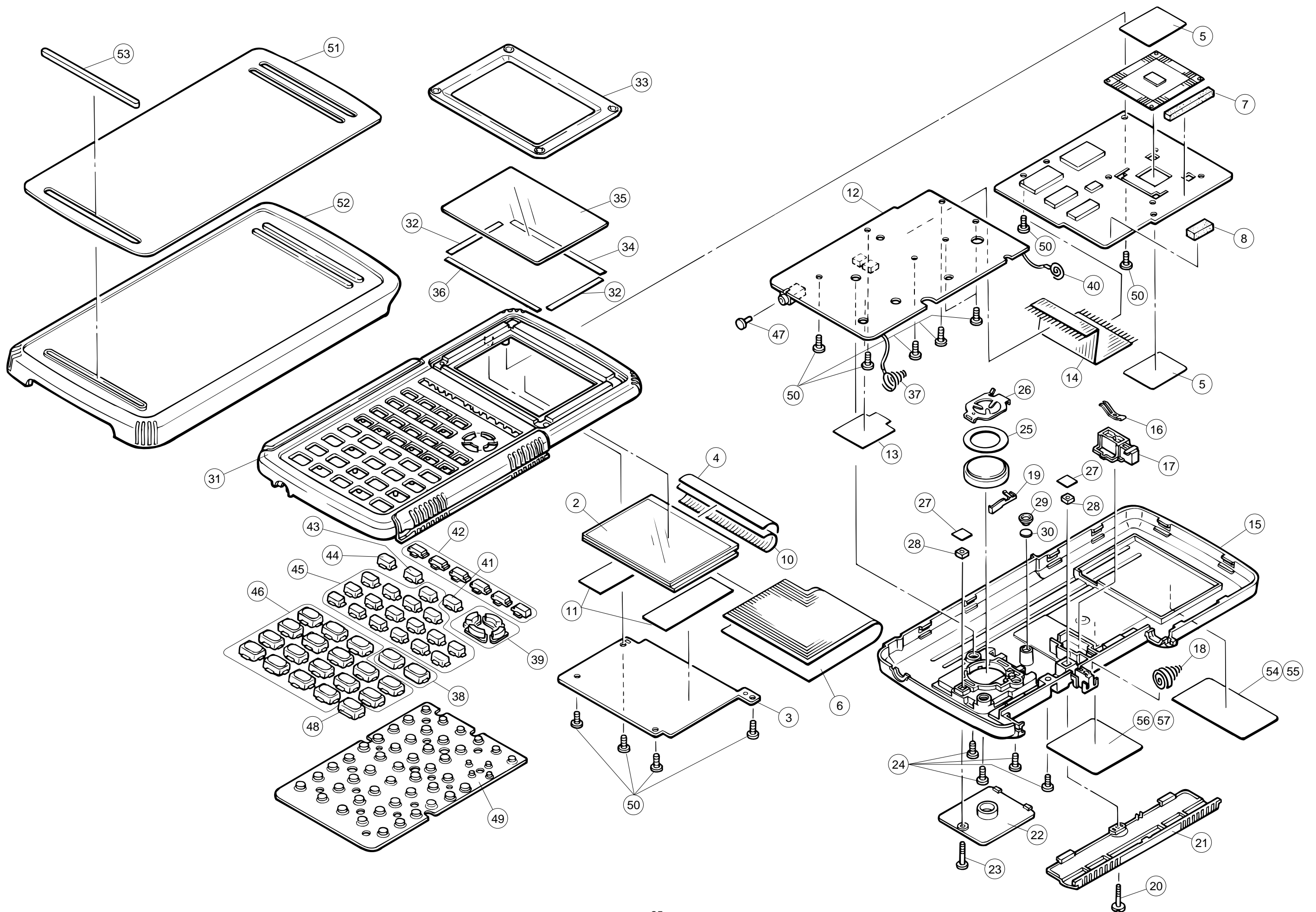
Fig. 1. L392-1 assembly and L392-2 assembly.

15. PARTS LIST

N	Item	Code No.	Parts Name	Specification	Q	M	FOB Japan N.R.Yen Unit Price	R
			L392-1 ASS'Y					
N	1	6413 4940	PCB L392-1 Ass'y	A140050*1	1	1		A
			(This assembly contains the following available elements.)					
N	LSI1	2012 0546	LSI	HD62119A02	1	1		C
N	LSI3	2012 0406	LSI	MB834000CPF-G-4EP	1	1		C
	LSI4	2011 3955	LSI	UPD43256BGU-B12	1	1		C
	IC1	2105 3213	C-MOS IC	BU4066BCF-T1	1	10		C
N	IC3	2105 4235	C-MOS IC	XC62AP2502PR	1	5		C
N	IC4	2105 2737	C-MOS IC	RH5RL50AA-T1	1	10		C
	X1	2590 1967	Ceramic oscillator	CSTC4.30MG-TC	1	5		C
	C1~4,C9, C19~25,C38	2845 1925	Chip capacitor	MCH312F105ZP	13	10		C
	C5,C8,C12, C13,C32	2845 2548	Chip capacitor	MCH183F104ZK	5	20		C
	C6,C7	2895 1365	Chip capacitor	MCH325F474ZP	2	10		C
	C18	2895 2359	Chip tantalum capacitor	ECSTOJX336R	1	10		C
	C26~31	2845 5684	Chip capacitor	MCH212C154KP	6	20		C
	D6	2390 1260	Chip diode	MA152A-(TX)	1	20		C
	R1	2791 1595	Chip resistor	ERJ-6GEYJ153V	1	20		C
	R2	2795 5649	Chip resistor	MCR10EZHG185	1	20		C
	R3	2797 0252	Chip resistor	ERJ-6GEYJ823V	1	20		C
N	R16	2797 4214	Chip resistor	ERJ-6ENF1001V	1	20		C
N	R17	2797 4221	Chip resistor	ERJ-6ENF2001V	1	20		C
N	R18	2797 4228	Chip resistor	ERJ-6ENF4021V	1	20		C
N	R19	2797 4235	Chip resistor	ERJ-6ENF8061V	1	20		C
N	R20	2797 4403	Chip resistor	ERJ-6ENF9312V	1	20		C
	R21	2797 4032	Chip resistor	ERJ-6ENF1502V	1	20		C
N	R22	2797 4256	Chip resistor	ERJ-6ENF9762V	1	20		C
N	R23	7102 6064	Chip resistor	ERJ-6ENF1003V	1	20		C
	R28	2797 0616	Chip resistor	ERJ-6GEYG105V	1	20		C
N	THR1	2755 0147	Thermistor	104HT	1	5		C
N	2	3335 5558	LCD	CD1013-TS	1	1		A
N	3	6413 5160	LCD holder L392	A340165-1	1	20		C
N	4	6413 5200	Tape B-L392	A440299-1	1	20		X
	5	6403 9330	Tape C-L170	A413108-1	2	20		X
N	6	5610 8300	Heat seal B-L392	A340116-1	1	1		A
N	7	6413 5210	Cushion B-L392	A440322-1	1	20		X
N	8	6413 5180	Cushion A-L392	A440250-1	1	20		X
N	9	6413 5320	COF3011-F1 sub ass'y	A340214*1	1	1		C
N	10	5610 8290	Heat seal A-L392	A340113-1	1	10		A
N	11	6413 5171	Adhesive tape B-L392	A440249A-1	2	20		C
			L392-2 ASS'Y					
N	12	6413 4960	PCB L392-2 Ass'y	A240063A*1	1	1		A
			(This assembly contains the following available elements.)					
N	13	6413 5220	Tape C-L392	A440302-1	1	20		X
N	C33,C34	2803 7800	Electriolytic capasitor	RE3-10V101M-T58	2	20		C
	C35,C36	2845 2548	Chip capacitor	MCH183F104ZK	2	20		C
	C37	2845 2898	Chip capacitor	MCH185A101JK	1	20		C
	D4,D5	2390 0364	Schottky diode	MA713-TX	2	10		C
N	IC6	2105 4242	CMOS IC	XC61AC2602PR	1	10		C

Notes: N – New parts
        M – Minimum order/supply quantity
        R – Rank
        Q – Quantity used per unit

R – A : Essential
     B : Stock recommended
     C : Others
     X : No stock recommended

N	Item	Code No.	Parts Name	Specification	Q	M	FOB Japan N.R.Yen Unit Price	R
N	IC7	2105 4074	CMOS IC	S-80724AL-AM-T1	1	10		C
	J1	3501 6538	Miniature jack	HSJ1169-012010	1	5		C
	Q6	2259 0959	Chip digital transistor	DTC114YKT-146	1	20		C
	R25	2792 1191	Chip resistor	MCR10EZHJ182	1	20		C
	R26	2792 0462	Chip resistor	MCR10EZHJ473	1	20		C
	R27	2792 0470	Chip resistor	MCR10EZHJ102	1	20		C
N	R31	2795 5663	Chip resistor	MCR10EZHJ475	1	20		C
	COMPONENTS							
N	14	6413 6010	PC joiner L392	A413642-5	1	5		C
N	15	6413 5300	Lower case L392	A140048-1	1	5		C
N	16	6274 7023	Contact spring	A4532C-1	1	20		C
N	17	6413 5310	Switch knob L392	A340089-1	1	20		C
N	18	6411 6700	Battery spring B-L196	A415028-1	1	10		C
	19	6398 8940	Battery spring L383	A311808-1	1	20		C
N	20	6413 5110	Flat screw L392	A440276-1	1	20		C
N	21	6413 5050	Battery cover A-L392	A340108-1	1	20		C
N	22	6413 5060	Battery cover B-L392	A340117-1	1	20		C
N	23	6413 6020	Screw B-L392	A412299-10	1	20		C
	24	6386 9510	Screw A-V426	A310044-3	4	20		C
	25	6329 7660	Battery insuration plate G272	A45154-1	1	20		C
	26	6329 7620	Battery spring A-G272	A33938-1	1	20		C
	27	6323 1011	Insuration seal G106	A43065-1	2	20		C
N	28	6408 1120	Nut L598AA	A411430-4	2	20		C
N	29	6391 8831	Rubber key V160	A311024A-1	1	20		C
	30	6405 6440	Blind al171	A413625-1	1	20		C
N	31	6413 5240	Upper case L392	A140035-1	1	1		C
N	32	6413 5280	Adhesive tape D-L392	A440185-3	2	20		C
N	33	6413 5250	Protector L392	A340119-1	1	5		C
N	34	6413 5260	Adhesive tape A-L392	A440185-1	1	20		C
N	35	6413 5290	Display plate L392	A340112-1	1	10		C
N	36	6413 5270	Adhesive tape C-L392	A440185-2	1	20		C
	37	6386 7450	Battery spring A-V355	A410112-1	1	20		C
N	38	6413 5000	Button B-L392	A340110-1	1	20		C
N	39	6413 5020	Button D-L392	A340123-1	1	20		C
	40	6403 8700	Battery spring C-L180	A412985-1	1	20		C
N	41	6413 5100	Button G-L392	A313257-5	1	20		C
N	42	6413 5010	Button C-L392	A340111-1	1	10		C
	43	6408 0080	Button F-L370	A313257-2	1	20		C
	44	6408 0070	Button E-L370	A313257-1	1	20		C
N	45	6413 5070	Button B-L392	A211316-4	1	10		C
N	46	6413 4990	Button A-L392	A240072-1	1	10		C
	47	6390 0430	Cap V332	A310765-1	1	20		B
N	48	6413 6000	Button H-L392	A340256-1	1	20		C
N	49	6413 5030	Key contact rubber L392	A240061-1	1	5		C
	50	6396 7660	Screw A-L564	A310044-13	12	20		C
N	51	6413 5130	Plate L392	A340243-1	1	1		C
N	52	6413 5040	Hard case L392	A240058-1	1	1		C
	53	6405 8831	Rubber strip L373	A412232A-2	1	20		C
	OTHERS							
N	54	6414 0050	FCC Label L392	A440395-1	1	20		X
N	55	6414 4660	EMI Label L392AAC	A440566-1	1	20		X
N	56	6413 5120	Label L392	A440354-1	1	20		X
N	57	6414 3730	Label L392AAQ	A440354-3	1	20		X

Notes: N – New parts
    M – Minimum order/supply quantity
    R – Rank
    Q – Quantity used per unit

R – A : Essential
    B : Stock recommended
    C : Others
    X : No stock recommended